We Claim:

1. A method for treating a neurodegenerative illness in a patient comprising culturing neuronal cells *in vitro* with an effective amount of at least one compound having an affinity for immunophilins; and transplanting said cultured neuronal cells into said patient.

2. The method of Claim 1, further comprising administering to said patient an effective amount of at least one compound having an affinity for immunophilins during transplantation of said neuronal cells.

3. The method of Claim 1, further comprising administering to said patient an effective amount of at least one compound having an affinity for immunophilins after transplantation of said neuronal cells.

4. The method of Claim 1, wherein said neuronal cells are second trimester human fetal neuronal cells.

5. The method of Claim 1, wherein said compound having an affinity for immunophilins is selected from the group consisting of FK506, rapamycin, cyclosporin A, FK-520, FK-523, 15-O-DeMe-FK-520, (4R)-[(E)-L-butenyl]-4,N-dimethyl-L-threonine, GPI-1046, V-10,367 and biological equivalents thereof.

6. The method of Claim 2, wherein said compound is selected from the group consisting of FK506, rapamycin, cyclosporin A, FK-520, FK-523, 15-O-DeMe-FK-520, (4R)-[(E)-L-butenyl]-4,N-dimethyl-L-threonine, GPI-1046, V-10,367 and biological equivalents thereof.

7. The method of Claim 3, wherein said compound is selected from the group consisting of FK506, rapamycin, cyclosporin A, FK-520, FK-523, 15-O-DeMe-FK-520, (4R)-[(E)-L-butenyl]-4,N-dimethyl-L-threonine, GPI-1046, V-10,367 and biological equivalents thereof.

8. The method of Claim 1, further comprising culturing said neuronal cells with an effective amount of at least one neurotrophic factor.

9. The method of Claim 8, wherein said neurotrophic factor is selected from the group consisting of nerve growth factor (NGF), hepatocyte growth factor (HGF), brain-derived neurotrophic factor (BDNF), insulin growth factor (IGF), gIGF-1, acidic and basic fibroblast growth factor (aFGF and bFGF, respectively),

platelet-derived growth factors (PDGF), ciliary neurotrophic factors (CNTF), leukemia inhibitory factor, glial cell line-derived neurotrophic factor (GDNF), neurotrophin-3 (NT-3), neurotrophin-4 (NT-4) and biological equivalents thereof.

10. The method of Claim 2, further comprising administering to said patient an effective amount of at least one neurotrophic factor, during transplantation of said neuronal cells.

11. The method of Claim 10, wherein said neurotrophic factor is selected from the group consisting of nerve growth factor (NGF), hepatocyte growth factor (HGF), brain-derived neurotrophic factor (BDNF), insulin growth factor (IGF), gIGF-1, acidic and basic fibroblast growth factor (aFGF and bFGF, respectively), platelet-derived growth factors (PDGF), ciliary neurotrophic factors (CNTF), leukemia inhibitory factor, glial cell line-derived neurotrophic factor (GDNF), neurotrophin-3 (NT-3), neurotrophin-4 (NT-4) and biological equivalents thereof.

12. The method of Claim 3, further comprising administering to said patient an effective amount of at least one neurotrophic factor after transplantation of said neuronal cells.

13. The method of Claim 12, wherein said neurotrophic factor is selected from the group consisting of nerve growth factor (NGF), hepatocyte growth factor (HGF), brain-derived neurotrophic factor (BDNF), insulin growth factor (IGF), gIGF-1, acidic and basic fibroblast growth factor (aFGF and bFGF, respectively), platelet-derived growth factors (PDGF), ciliary neurotrophic factors (CNTF), leukemia inhibitory factor, glial cell line-derived neurotrophic factor (GDNF), neurotrophin-3 (NT-3), neurotrophin-4 (NT-4) and biological equivalents thereof.

14. A method for treating a neurodegenerative illness in a patient comprising transplanting neuronal cells, which have been cultured with compounds having an affinity for immunophilins into said patient.

15. The method of Claim 14, further comprising administering to said patient an effective amount of at least one compound having an affinity for immunophilins during transplantation of said neuronal cells.

16. The method of Claim 14, further comprising administering an effective amount of at least one second compound having an affinity for immunophilins after transplantation of said neuronal cells.

17. The method of Claim 14, wherein said neuronal cells are second trimester human fetal neuronal cells.

18. A method of improving the survival of neuronal cell transplants in a patient who has received a neuronal cell transplant comprising administering to said patient an effective amount of at least one compound having an affinity for immunophilins, during or after transplantation of said neuronal cells.

19. The method of Claim 18, further comprising administering to said patient an effective amount of at least one neurotrophic factor, during or after transplantation of said neuronal cells.

20. The method of Claim 18, wherein said neuronal cells are second trimester human fetal neuronal cells.

21. A method of improving neurite extension and integration of neuronal cell transplants in a patient who has received a neuronal cell transplant comprising administering to said patient an effective amount of at least one compound having an affinity for immunophilins, during or after transplantation of said neuronal cells.

22. The method of Claim 21, further comprising administering to said patient an effective amount of at least one neurotrophic factor, during or after transplantation of said neuronal cells.

23. The method of Claim 21, wherein said neuronal cells are second trimester human fetal neuronal cells.

24. A method of improving neurite proliferation, neurite extension and neuronal survival of second trimester human fetal neuronal cell transplants comprising culturing said cells with an effective amount of at least one compound having an affinity for immunophilins.

25. The method of Claim 24, further comprising administering to said cells an effective amount of at least one neurotrophic factor.

26. A method of decreasing gliosis of second trimester human fetal neuronal cells comprising culturing said cells with an effective amount of at least one compound having an affinity for immunophilins.

27. The method of Claim 26, further comprising administering to said cells an effective amount of at least one neurotrophic factor.

28. A second trimester human fetal neuronal cell that has been cultured with at least one compound having an affinity for immunophilins.